

NEWS AND NOTES

GOLDEN JUBILEE CELEBRATIONS OF THE GEOLOGICAL SOCIETY OF INDIA, 12-13 OCTOBER 2008, BANGALORE: A REPORT

Background of the Geological Society of India

Prof. L. Rama Rao, Prof. B. Rama Rao, Prof. C.S. Pichamuthu of the Geology Department, Central College, Bangalore, Dr. B.P. Radhakrishna of the Mysore Geology Department and Shri P.S.Narayana, Mine Owner, Bangalore, decided to create a forum, outside the influence of the Government and its policies, with the ambition of 'promoting in the most effective manner, the advanced study and research in all branches of Indian geology'. The Geological Society of India was thus founded at Bangalore on 28th May 1958, and later registered under the Mysore Societies Registration Act of 1904 with Dr. D.N. Wadia, the then Geological Adviser, Atomic Energy Commission, Government of India, the doyen among Indian geologists, as the first President, Prof. L. Rama Rao, Professor of Geology and Principal of Central College, Bangalore, as the founder Editor and Dr. B.P. Radhakrishna as the first Secretary. Prof. B. Rama Rao, C.S. Pichamuthu, Jacob Kurien and B.P. Radhakrishna were the subsequent Presidents. Dr. B.P. Radhakrishna continued as Editor for 15 years, and served for 17 years as the President and is appropriately, if informally, regarded as the father of the Society by all. The current President Prof. Harsh Gupta took over the reigns in January 2008. Over the years, the Society has grown in strength to over 2,500 members incorporating all branches of earth science and spread all over the world. Since 1977 the Society's journal is issued on the first day of every month and has recognition as an SCI publication. The Society has also published a number of memoirs, special publications, textbooks on geology of different States of India, geological field guides, and booklets on popularization of earth sciences in different Indian languages. The Society is respected globally. The Society is an affiliate of IUGS. The International Kimberlite Conference is scheduled to be conducted in India in 2012 under the banner of the Geological Society of India.

Genesis of the Golden Jubilee Celebrations of the Society

The Golden Jubilee of such an organization is a momentous and proud occasion indeed. Decision to celebrate it in a memorable way was taken way back in January 2005 and a Core Team was formed for the proper

planning and preparations, culminating in a superbly sculpted Golden Jubilee Year.

The Society in close liaison with leading earth science institutions of India has organized seminars held in different parts of India, the proceedings of which have been embodied as Memoirs for the benefit of students and professionals. This served the dual purpose of establishing links and connections within the various branches of specialization within the Earth Science community.

Journal of the Society

A unique feature of the Golden Jubilee Year has been that every issue of the Journal has published an invited paper by noted earth scientist(s) on an important issue of current interest.

Inaugural Programme and Felicitations: Sunday 12th October 2008, 9.30 a.m.

The GJC began formally on 12th morning at 9.30 a.m. with the traditional invocation '*Vathapi Ganapathim Baje*' in raga '*Humsadwani*' – rendered so harmoniously in Sitar by Shri Sundar accompanied in tabla by Shri Sharma of Kalashiti, Bangalore set the stage for events to follow. Dr. Harsh Gupta, President of the Society in his opening remarks welcomed the delegates/scientists from overseas, special invitees and the large number of fellows who had come from different parts of India. He extended a special welcome to the school children from different parts of India



Prof. R. Vaidyanadhan receiving felicitation on behalf of the founder member Dr. B.P. Radhakrishna

Seminars held as part of Golden Jubilee Celebration			
1.	“Changing Geohydrological Scenario in hard rock terrains of India”	29 & 30 th April 07	Regional Institute of Cooperative Management, Bangalore.
2.	“Collision Zone Geodynamics”	20-21 st September 07	Wadia Institute of Himalayan Geology, Dehradun
3.	“Palynology in Fossil Fuel Exploration”	14-15 November 07	Birbal Sahni Institute of Palaeobotany, Lucknow.
4.	“Crustal Evolution, Sedimentary Processes and Metallogeny”	28-30 th November 07	S.D.M. College of Engineering and Technology, Dharwad, Karnataka.
5.	Significant Milestones in the Growth of Geochemistry in India during the 50 years period: 1958-2008”	20-22 nd February 08	Atomic Minerals Directorate for Exploration & Research, Hyderabad
6.	“Drinking water and Food security in hard rock areas through optimal use of Groundwater, rainwater harvesting & Crop-water planning with special reference to Gadag district, Karnataka”	29-30 th April 08	K.H. Patil Krishi Vigyan Kendra at Hulkoti, Gadag Taluk and District, Karnataka.
7.	“Significant Milestones in the Growth of Geophysics in India during the 50 years period: 1958-2008”	25-26 th June 08	National Geophysical Research Institute, Hyderabad
8.	“Symposium on Geodynamics and Evolution of Indian Shield – Through Time and Space”	18-19 th September 08	Centre for Earth Science Studies, Thiruvananthapuram
9.	“Seminar on Emerging trends in Geotechnology - Challenges and Opportunites”	7-8 th November 08	Global Academy of Technology, Bangalore
Seminars to be held as part of Golden Jubilee Celebration			
10.	“Indo-Myanmar (Burma) Ranges in the Tectonic Framework of Himalaya and Southeast Asia”	27-29 th November 08	Manipur University, Imphal.
11.	“Ore Body Modeling for Genesis, Predictive Metallogeny and Resource Analysis”	16-18 December 08	M.S. University, Udaipur.
12.	“Changing Geohydrological Scenario and its Environmental Impact”	29 & 30 th April 2009	Institute of Development Studies Jaipur
13.	Gold Industry in India: Resources, Reserves, Mining, Metallurgy and Environment.	28-29 th May 2009	Sponsored by Hutti Gold Mines Ltd.

notably from the Northeast. Two founder members of the Society, whose blessings are still available, Dr. B. P. Radhakrishna and Shri Y. N. Rama Rao, were honoured.

Sixteen distinguished speakers, Directors of national institutes and Presidents of national and international scientific unions addressed the audience. They dwelt briefly

on the Society and its role in the past and future, as well as the status of scientific and professional advancement within the organizations, which each of them represented, reiterating their close association with the ideals and purpose of the Society. These include Dr. N.C.Mehrotra, Director, Birbal Sahni Institute of Palaeobotany; Prof. M. Vijayan,



Felicitation of Shri Y.N. Rama Rao, Founder member



Felicitation of Shri N.A. Baldota, CMD, MSPL Ltd.

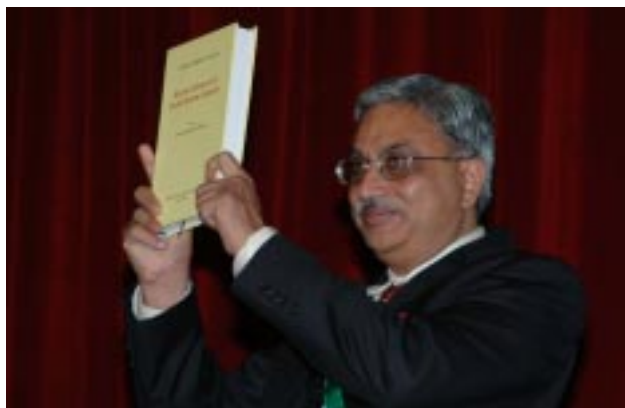
President, Indian National Science Academy; Dr. Rasik Ravindra, Director, National Centre for Antarctic and Ocean Research; Dr. B. R. Arora, Director, Wadia Institute of Himalayan Geology, Dr. M. Baba, Director, Centre for Earth Science Studies; Dr. Amaledu Sinha, Director, Central Institute of Mining and Fuel Research; Dr. Rabi Bastia, Senior Vice President (Exploration) RIL; Dr. Satish R Shetye, Director, National Institute of Oceanography; Dr. V.P. Dimri, Director, National Geophysical Research Institute; Dr. P.M. Tejale, Director General, Geological Survey of India; Prof. O.P. Varma, Executive President, Indian Geological Congress; Dr. Anjan Chaki, Director, Atomic Minerals Directorate; Shri V. Ramachandran, Member, Administrative Reforms Commission; Prof. Goverdhan Mehta, President, ICSU; Shri N. A. Baldota, Chairman and Managing Director, MSPL Limited; Dr. Shailesh Naik, Secretary, Ministry of Earth Sciences. All of them spoke affectionately of the work of the Society.

Release of Golden Jubilee Volume and other Publications

In keeping with the strong publication tradition of the Society, the Inaugural Session also witnessed the release by eminent personalities, of five comprehensive and contemporary volumes:

1. Golden Jubilee Volume: Recent Advances in Earth System Sciences, edited by Harsh Gupta and Fareeduddin, with following contributions:

1. The Origin and Evolution of the Moon in a Planetary Context by Stuart Ross Taylor
2. Lunar Regolith and Low-Ti Mare Simulants JSC-1 and JSC-1A by James L. Carter
3. Catastrophes, Extinctions and Evolution: 50 Years of Impact Cratering Studies by W. Uwe Reimold and Christian Koeberl



Dr. Shailesh Naik, Secretary MoES releasing the volume "Recent Advances in Earth System Sciences"

4. Dharwar Craton: An Example of Archaean Geodynamics by S.M. Naqvi
 5. Petroliferous Basins of India – Fifty Years' History and Perspective by S.K. Biswas
 6. Geodynamic Evolution of the Indian Plate: Consequences for Dispersal and Distribution of Biota by Ashok Sahni and G.V.R. Prasad
 7. Active Tectonic of the Himalaya by V. C. Thakur
 8. Late Quaternary Evolution of the Ganga Plains: Myths and Misconceptions, Recent Developments and Future Directions by S.K. Tandon, R. Sinha, M.R. Gibling, A.S. Dasgupta and Parvez Ghazanfari
 9. Deep Seismic Imaging of Indian Continental Crust and Lithosphere by Harish C. Tewari
 10. Gravity Studies in India and their Geological Significance by D.C. Mishra, V.M. Tiwari and B. Singh
 11. Major and Great Earthquakes and Seismic Gaps in the Himalayan Arc by V.K. Gahalaut
 12. Artificial Water Reservoir Triggered Earthquakes, with Special Emphasis on Koyna Earthquakes, India by Harsh Gupta
 13. Advances in Kimberlite Geology and Petrology by Roger H. Mitchell
 14. Recent Advances in Observing the Earth from Space by Anny Cazenave
 15. Evolution, Paleogeography and Sediment Provenance, Bay of Bengal, Indian Ocean by Joseph R. Curray and Ruth Allen
 16. Antarctic Earth Science – Indian Effort by Rasik Ravindra
 17. Indian Ocean Drilling Program by Manik Talwani
 18. Cosmogenic Nuclides in the Environment: A Brief Review of their Applications by S. Krishnaswami and D. Lal
 19. Vagaries of the Indian Summer Monsoon by Sulochana Gadgil
 20. Population Growth and Climate Change: their Impact on Planet Earth and its Human Societies by G. De Marsily
 21. Selected Advances in Geology and the Indian Scenario by Balaram Chattopadhyay.
2. 50 Years of the Journal: Some Significant Landmarks by B.P. Radhakrishna and S. Viswanathan.
 3. Hydrological Research in India edited by S. Das.
 4. Golden Jubilee Souvenir by S.V. Srikantia
 5. Glacier Atlas of India edited by V.K. Raina

The seven Proceedings volumes pertaining to the seminars already conducted were released by the respective editors and remain as commendable and critical records of

the progress of the various branches of geoscientific activities in the country during the last five decades:

1. "Changing Geohydrological Scenario in hard rock terrains of India" (Ed. Subhajyoti Das; RICM, Bangalore)
2. "Collision Zone Geodynamics" (Eds. B.R. Arora and Rajesh Sharma; WIHG, Dehra Dun)
3. "Palynology in Fossil Fuel Exploration" (Eds. N.C.Mehrotra, B.D.Singh, P.N.Kapoor and Rahul Garg; BSIP, Lucknow)
4. "Significant Milestones in the Growth of Geochemistry in India during the 50 years period: 1958- 2008" (Eds. Anjan Chaki and K. Shivakumar; AMD, Hyderabad)
5. "Drinking water and food security in hard rock areas through optimal use of Groundwater, rainwater harvesting and Crop-water planning with special reference to Gadag District, Karnataka" (Ed. Subhajyoti Das; Krushi Vigyan Kendra, Gadag)
6. "Five Decades of Geophysics in India" (Eds. Bijendra Singh and V.P. Dimri; NGRI, Hyderabad)
7. Geodynamics and evolution of Indian Shield-through time and space (Eds. T. Radhakrishna, M. Ramakrishnan and Narayanaswamy; CESS, Thiruvananthapuram).

Technical Sessions

Six Technical sessions, spread over two days 12th & 13th October had 32 lectures by leading experts of earth sciences from India and abroad (USA, UK, France, Germany, Japan, and South Africa). The topics covered a variety of currently debated issues such as global warming, climate change, population growth, food and water security, natural hazards - prediction and mitigation, geodynamics and crustal evolution, HRD for petroleum exploration, geo-archeology, development of moon rock and regolith simulates besides a few others. A special feature of the GJC was the association of school children. The full abstract of the papers can be seen on the Society's website (www.gsocindia.org) and also released in the Abstract Volume of the seminar. In order to cater to a broad spectrum of earth scientists, each session had papers on diverse topics that ranged from moon rocks to the rise of Himalaya!

Natural Hazards and Environment Related Topics

Ghislain de Marsily, Emeritus Professor, University of Paris and French Academy of Sciences, spoke on '*Population Growth and Climate Change: their implication on Planet Earth and its Human Societies*'. Based on IPCC Report, Marsily projected the possible World scenario for

climate change, status of water resources, water scarcity and drought and food production by 2050.

Walter Mooney of Earthquake Hazards Programme, USGS, Melno Park, California spoke on '*Earthquake and Tsunami hazards in the 21st century: lessons from the Indian Ocean region and Sichuan, China*'. Based on the experiences of the 2004 tsunami in the Indian Ocean and the Sichuan earthquake, wherein over 300,000 people died, Mooney, cautioned that precaution is a must even for such 'low probability' events.

Global warming, melting of polar ice sheets and sea level increases are inter-related phenomena that concerns every nation, notably those with long coast lines like India. **Anny Cazenave** of LEGOS-CNES, Toulouse, France, spoke on '*Primary Sea-level rise: observations, causes and impacts*'. Sea level changes based on global satellite altimetry measurements since 1993 has enabled precise measurements of sea level changes (1.2 mm/y) attributed to both the thermal expansion of the ocean (c. 50%) and land ice mass loss and land waters contributing to the other 50%.

Harsh Gupta, President of the Society in *A few Recent Success Stories from India* provided an over view of the status of geophysical studies in India and highlighted some of the recent achievements in India in the fields of reservoir induced seismicity and its prediction, deployment of an state-of-art end to end tsunami and storm surge warning system, desalination of ocean water through the low temperature thermal desalination technique and successful commissioning and operation of a 100,000 liters/day desalination plant at Kavaratti, the first and so far the only one in the world; and innovative research for estimating gas hydrates reserves.

In an eloquent appeal addressed in Hindi, Megsabay award winner **Rajendra Singh** explained as how a water-starved part of Rajasthan was transformed through water harvesting (seven ephemeral rivers made perennial) by all the villagers over an area of some 8600 km² through his 'Citizen Movement for Water Resource Management'.

In an interesting presentation titled '*Understanding the recent and past climate change from Antarctic ice cores*' **Thamban Meloth** of NCAOR, Goa, narrated how Antarctica is unique in influencing the climate on the earth and also preserving evidences of past climates (up to 800,000 years back) preserved in its thick ice sheets.

The importance of micropaleontology from sediment cores from the continental slopes of the Arabian Sea in inferring Indian monsoon climate was presented by **A.D. Singh**, Department of Geology, BHU, on *Role of Micropaleontology in unravelling the Quaternary history of the Arabian Sea and the Indian monsoon*. Based on



A section of the participants at the Golden Jubilee Celebrations of the Geological Society of India.

geochemical (Mg/Ca ratio) and Oxygen isotopic studies on calcite from the foraminifera and pteropods, significant inferences regarding the strength of winter monsoon can be made.

P. M. Tejale in his presentation, *Geological Survey of India: Glimpses*, talked about the contributions of this organization, established in 1851, towards coal exploration, seismic studies in Himalaya, exploration for groundwater, mineral resources, natural hazard mitigation, Antarctic expeditions, medical geology, seabed resources and more.

Geodynamics, Crustal Evolution and Related Topics

Ashok Sahni, from the Centre of Advanced Study in Geology, Chandigarh traced the evolution of biota during the rifting and drifting stage of 'Greater India' wherein it passed through different physiographic and ecosystem domains such as a part of supercontinent, rifting and flood basalt volcanism during an island stage and after collision with Asia in to a peninsula.

Sunil Bajpai, IIT, Roorkee, elaborated further on the above theme in his lecture on *Biogeographic and Evolutionary Aspects of Late Cretaceous-Eocene Terrestrial Fossil Biota from India: Recent Advances in a Geodynamic Context*. Recent finds of endemic (Indian) ostracods from the Deccan intertrappeans supports the 'island' model for India around the K-T boundary (65 Ma).

S.K. Acharyya, former Director General, GSI and Emeritus Scientist, Jadavpur University, traced the geological history of '*Continental collision and subduction processes in the tectonic evolution of the Indo-Burma-Andaman mobile belt*'. The N-S trending Indo-Burma Range and the Andaman (IBA) outer-island arc has been recognized as a 'microcontinent' bridging the eastern end of the Himalayas in the north and the Indonesian island arc in the south.

Based on studies of provenance rocks for the major geological units of Himalaya, such as the Paleoproterozoic Lesser Himalayan metasedimentary belt, the Neoproterozoic higher Himalayan Gneiss, the Cambrian to Lower Cenozoic Tibetan-Tethys sedimentary sequence, **Masaru Yoshida** (Gondwana Institute of Geology and Environment, Hashimoto, Japan) and **Upreti** (Tribhuvan University, Kathmandu, Nepal) in his talk *Provenance of Himalayan Orogen supports the Grenvillian formation of East Gondwana* inferred that the Indian craton was part of the Circum-East Antarctica Orogen including Western Australia and Eastern Antarctica during Neoproterozoic times and supports the assembly of East Gondwana during the Grenvillian Circum-East Antarctic orogeny.

Based on sediment provenance from the Bengal Fan in

the Bay of Bengal, **Joseph R. Curray** (Scripps Institution of Oceanography, San Diego, California and Ruth Allen, Lancaster University, U.K., in his talk *The India-Asia Collision: Formation and Sediment Provenance of the Bay of Bengal* have attempted to trace the chronology of the India-Asia collision. The initial 'soft collision' occurred in late Paleocene (c.59 Ma) followed by 'hard' continent-continent collision during middle Eocene (c. 43 Ma) which formed the Bay of Bengal.

Dhruba Mukhopadhyay, INSA Honorary Scientist, Raman Centre for Applied and Interdisciplinary Sciences, Kolkata, provided a succinct account of the current status of knowledge on the *Evolution of the North Singhbhum Fold Belt* (NSFB). Several major shear/thrust zones such as the Singhbhum, Dalma and South Purulia occur within the NSFB with polyphased deformation and metamorphic events. Available evidences, according to Dr. Mukhopadhyay, are consistent with a 'tectonic model that envisages an initial syn-sedimentary mafic volcanism caused by asthenospheric upwelling and rifting with the formation of a nascent oceanic crust', followed by compressional tectonics (orogenesis).

Richard P. Viljoen, Honorary Professor, University of Witwatersrand, South Africa in his lecture on '*Komatiites and the Indian connection*' reviewed the world scenario beginning with the Komati River section from South Africa. Most of the komatiites from the Dharwar occurs in the Sargur schist belt at c. 3.35 Ga; Indian komatiites seem to have formed from a depleted mantle source, the depletion being attributed to an earlier based on plume and plume-arc models.

M. Ramakrishnan, former Dy. DG of GSI, provided a succinct overview on the *Tectonics and Crustal Evolution of Dharwar Craton* based on the 'accretion orogeny' concept. According to this model the Dharwar craton comprises two major terranes namely an older western part represented by two orogenies (Sargur 3.3-3.0 Ga and Dharwar 2.8-2.55 Ga) and younger eastern part with numerous, narrow, parallel greenstone belts emplaced contemporaneously with the Dharwar Supergroup of WDC at c. 2.7-2.6 Ga.

R.S. Sharma in his presentation, *Metamorphic Petrology: Recent Advances and Future Trend in the Indian context*, stressed on the contributions from India towards metamorphic petrology and how they influenced thoughts globally.

T.K. Biswal, IIT, Mumbai highlighted the importance of detailed field studies and their bearing on SHRIMP generated age data, in his talk *Tectonics of the NW margin of the Eastern Ghats Mobile Belt, Orissa*. Based on studies on the syn-kinematic Khariar syenite pluton that is found

along the Eastern Ghat Mobile Belt, Dr. Biswal brought out that SHRIMP data on zircon from the highly crushed part of the pluton gave 1.1 Ga as against those unaffected by shearing which gave an age of 550 Ma, thus supporting his model of Pan-African accretion of the Eastern Ghat with the Indian craton.

S.K. Tandon of Delhi University stressed the need to study and classify the dispersal of large river systems like the Ganga in terms of 'geodiversity' and 'connectivity' from source to sink in *Towards the Classification of the Ganga Dispersal System via an understanding of its geo-diversity characteristics*. Accordingly, Dr. Tandon proposed a five-component classification, namely: 1. Himalayan hinterland from source to mountain exit 2. Cratonic hinterland comprising the Aravallis, Bundelkhand and Singhbhum belts 3. Northern alluvial plains, north of Ganga and the Yamuna 4. Southern alluvial plains, south of Ganga and Yamuna, and 5. Lower Ganga plains and delta.

S.K. Parcha, Wadia Institute of Himalayan Geology spoke on *Multivariate Morphometric Analysis in palaeobiology / palaeontology: a case study of Cambrian Trilobites* with reference to the Tethys Himalayas which provides a continuous and tectonically undisturbed sediment sequence with low diversity in the 'trilobite'. The discovery of trace fossils Phycodes (*Trepitichnus*) from the Cambrian sequence, according to Dr. Parcha has enabled precise marking of the Precambrian-Cambrian boundary.

Manish Mamtani, IIT, Kharagpur in *Deformation, Magnetic Fabric and Applications* presented the case of utilizing the anisotropy of magnetic susceptibility (AMS) of minerals to infer the intensity of strain in geological terrains that have undergone deformation and shearing with case studies from the Godhra and Malanjhand granites and the adjoining Central Indian Tectonic Zone.

R. Shankar, Professor of Geology Dept, Mangalore University gave an interesting lecture on '*Environmental Magnetism*' and explained as how the simple properties of magnetic minerals such as their concentration, mineralogy, magnetic domain and grain size can be used to infer on environmental processes, both natural and anthropogenic.

Rainer Kind, GFZ, Postdam gave a talk on the '*S-Receiver Function and the Lithosphere-Asthenosphere boundary*'. This technique is based on the response (a small converted daughter phase) that is produced by primary P or S waves at the LAB beneath a seismic station, which is interpreted.

In a very interesting and lucid presentation, *Integrated Ocean Drilling Program*, **Manik Talwani**, ISDP Management International, Washington, D.C., traced the genesis of the ISDP to both DSDP and ODP, which

concluded successfully. According to Talwani, the present endeavour utilizes two drill ships namely, Chikyu (Japanese) and Joides Resolution (US) besides Mission Specific Platforms organized by Europe. Dr. Talwani further described the 6 km deep borehole scheduled during 2009-10 across a fault in the Philippine-Japanese coast with a laboratory inside the drill hole.

R. Nagendra, Anna University, presented *Outcrop Sequence Stratigraphy framework of Cretaceous Sediments of Ariyalur Area, south India*, which elucidated the role sequence stratigraphy can play towards age estimation, facies distribution for improved understanding and exploration for reservoirs, sources and seal distribution.

Vandana Prasad from the Birbal Sahni Institute of Paleo-Botany, Lucknow, presented *Holocene Studies: Climate of the Recent Past*, which revolved around methods of climate prediction and Paleo-climatology from natural proxies.

Rajiv Sinha from IIT, Kanpur presented a very timely work on *Kosi: Rising Waters, Dynamic Channels and Human Disaster*, which explained how interactions between dynamic river systems with natural processes like sediment loading as well as human alterations may be the cause of unprecedented river hazards.

Dhananjay A. Sant from Gujarat presented *Geo Archaeology: Recent Trends*, which featured the multi-disciplinary science and its contributions towards reconstructing the details of the geology of the recent past.

Moon Rock Simulants

James Carter of the Department of Earth Sciences, University of Texas, Dallas, USA, in *Lunar Regolith and Low-Ti Mare Simulants JSC-1 and JSC-1A* advocated the need for making large quantities of lunar regolith simulants that are required to develop lunar hardware, spacesuits, mining and manufacturing equipment and methods, to study the effects of dust on humans, instruments and rocket engine as well as growing agricultural products. Carter has succeeded in producing 49 tons of this extremely difficult simulants JSC-1 and its clone JSC-1A, which are being used in some 1300 research projects.

Hydrocarbon Exploration and Global Petroleum Workforce Needs

In an interesting lecture *Geoscience Organizations Role in Full Filling Global Petroleum Workforce Need: Example from the Asia Pacific Region* by Herman Darman, Shell International, E & P, AAPG, recognized that the Petroleum work force for the future has to come from the Asia-Pacific region, mainly from China, India and Indonesia.

The AAPG Asia Pacific region has initiated several programmes to bridge the industry-academia gap by creating Visiting Geoscientists, Distinguished Lecturer, Imperial Barrel Award, Publication Pipeline and others. Local organizations, like the Geological Society of India, can play a major role in this endeavour. Darman and AAPG look forward to such co-operations in the future.

Interactive Session and Feedback

In this session, with Harsh Gupta, Walter Mooney and M. Ramakrishnan in the chair, questions and opinions were sought from participants, notably from the school students assembled from different parts of India for the GJC.



Interaction of students during Panel discussion



Panel discussion chaired by Walter Mooney, Harsh Gupta and M. Ramakrishnan.

Students from were very inquisitive to know the answers for a variety of questions (the brief answers or comments in parantheses). These include:

1. Whether extracting oil from wells (e.g. Assam oil fields) can trigger earthquakes? (No)
2. Can earthquakes and landslides be predicted? (No scientifically acceptable technique is available as of now to make successful short term forecasts of earthquakes. However, as far as the land slides are concerned, detailed technical monitoring can give fairly accurate estimates of the time of the likely landslide)
3. How safe are dams in NE India? (They are designed and constructed to with stand even stronger earthquakes than normally assumed in such seismic zones)
4. Can we control plate movement? (No, they are too large earth processes to control)
5. How accurate is animal behaviour to predict earthquakes? (Animals with four legs on the ground may sense movements better than humans but forecasting earthquakes from their behavior alone is

not possible. Accurate measurements of strain build up across major faults (e.g. the San Andreas Fault in California) and monitoring pre-quake shocks can help in prediction)

6. Can tsunamis be stopped? (No, but since 'tsunami waves' reach coastal regions after a significant time lapse (1-2 hours in distant places), they can be warned to take precautions as has been done in India recently with the establishment of Indian Ocean Tsunami Warning System)
7. Shortage of petroleum products? (Shortages can be avoided by discovering more oil, using lesser oil by other sources of energy especially renewable sources like solar, wind, water and tides)
8. Linking up of some perennial north Indian rivers to southern rivers (Theoretically feasible but a lot of scientific studies are needed since such a scheme will permanently change the ecosystem, possible adverse effects, if any, are poorly known. Adoption of better rain harvesting systems might help the objective in a better way)
9. Anxiety expressed over the effect of 'Big Bang'-related experiments at CERN in Europe (They are being carried out to understand the earliest stages of the formation of matter and the universe using particle accelerators. There is no need to fear from such experiments).

Comments from Sessions Chairmen

The Session Chairmen generally commended the different speakers on the quality of presentation, contents and above all adhering to the time schedule given. Dr. Viljoen suggested that joint studies on the Precambrians of the southern continents so as understand the crustal evolution in a better perspective. Papers on population and food security by Dr. Marsily, lunar Marie simulants by Dr. Carter, DSDP by Dr. Manik Talwani, Geo-Archeology by Dr. Sant,

Kosi disaster by Dr. Sinha, were cited by the Chairmen as note worthy.

There were also comments as to the omission of topics on 'Aero-space' applications in earth sciences. Suggestions from fellows included a 'revisit' of the Purana basins and a new memoir on them, conduction of fields workshops, inclusion of contribution in mineral economics and UNFC classification of resources, efforts to declare sites of geo-archeological importance as national heritage sites which could become potential tourist spots, exhibition of museum samples, preparation of field guides and text books on geology for school children especially in regional languages, introducing geology as a subject in schools (Kerala model), taking up the cause of geology-graduates admission in to B.Ed. courses, introducing student membership in the Society membership and others.

Conclusion

President Dr. Harsh Gupta thanked all those who participated in the interaction session and welcomed further interactions and suggestions through e-mail. He outlined that the Society plans to come up with white papers on topics relevant to both Societal and national interest such as those of linking rivers, Sethu Samudram project, renewable sources of energy and others.

The celebrations ended with felicitations to Editors



Shri R.H. Sawkar proposing vote of thanks

besides Ms. Kusumita Arora for anchoring GJC and also those working at the Society's office in various capacities.

The meticulous planning of the GJC since 2005 and its execution in 2007-2008 has been largely due to the unflagging efforts of all the Council Members and Fellows of the Society

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